This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-26 (Canceled).

Claim 27. (New) A method of manufacturing an implantable endoluminal device capable of radially expanding from a first diameter to a second diameter comprising the steps of:

a. vacuum depositing a device-forming metal onto an unpatterned, exterior surface of a generally cylindrical substrate at a deposition rate that controls a formation of heterogeneities to form a generally tubular, unpatterned, substantially homogeneous metal film on the exterior surface of the substrate;
b. forming a pattern of openings through the deposited generally tubular, unpatterned, substantially homogeneous metal film to form the implantable endoluminal device, whereby the pattern of openings provide a plurality of geometric deformation regions that permit radial expansion of the implantable endoluminal device; and
c. removing the implantable endoluminal device from the substrate.

C1

Claim 28. (New) The method according to Claim 27, further comprises the step of depositing a sacrificial material layer onto the substrate prior to step (a) and removing the sacrificial material layer in order to remove the implantable endoluminal device from the substrate in step (c).

Claim 29. (New) The method according to Claim 27, wherein step (a) is conducted by ion beam-assisted evaporative deposition.

Claim 30. (New) The method according to Claim 27, wherein step (a) is conducted by sputtering.

Claim 31. (New) The method according to Claim 29, wherein the ion beam-assisted evaporative deposition is conducted in the presence of an inert gas.

Claim 32. (New) The method according to Claim 31, wherein the inert gas is selected from the group consisting of argon, xenon, nitrogen and neon.

Claim 33. (New) The method according to Claim 27, wherein the deposition rate is at least about 20 nm/sec.

Claim 34. (New) The method according to Claim 27, wherein the deposition rate is between about 10-100 microns/hour.

Claim 35. (New) The method according to Claim 27, wherein during the deposition of the device-forming metal, the deposition chamber pressure is less than about 2×10^{-7} torr.

Claim 36. (New) The method according to Claim 27, wherein during the deposition of the device-forming metal, the substrate is rotated.

Claim 37. (New) The method according to Claim 27, wherein during the deposition of the device-forming metal, the substrate temperature is between about 300 and 1100 °C.

Claim 38. (New) A method of making an implantable medical device comprising the steps of:

a. providing a substrate having a shaped exterior surface capable of accommodating metal deposition thereupon;
b. vacuum depositing a biocompatible material onto the shaped exterior surface of the substrate at a deposition rate, with a substrate temperature, and at a deposition chamber pressure that controls a formation of heterogeneities on a surface of a biocompatible material layer; and
c. forming the implantable medical device from the deposited biocompatible material.

C 1 Cont

Claim 39. (New) The method according to Claim 38, wherein the deposition rate is at least about 20 nm/sec, the deposition chamber pressure is less than about 2×10^{-7} torr, and the substrate temperature is between about 300 and 1100 °C.

Claim 40. (New) The method according to Claim 38, wherein the deposition rate is between about 10-100 microns/hour, the deposition chamber pressure is less than about 2×10^{-7} torr, and the substrate temperature is between about 300 and 1100 °C.

Claim 41. (New) The method according to Claim 38, wherein step (a) further comprises the step of imparting a pattern onto the shaped exterior surface of the substrate, and the pattern is transferred to the biocompatible material layer in step (b).

Claim 42. (New) The method according to Claim 38, further comprising the step of depositing a sacrificial material layer onto the substrate prior to step (b) and removing the sacrificial material layer in order to remove the implantable medical device from the substrate.

Claim 43. (New) The method according to Claim 38, wherein the shaped exterior surface is that of a cylinder, and the substrate is rotated during step (b).

Claim 44. (New) An implantable medical device produced according to the method of Claim 38, wherein control of heterogeneities on the surface of the biocompatible material layer provides the implantable medical device with a substantially homogeneous surface.

C 1 Cont

Claim 45. (New) The implantable medical device according to Claim 44, wherein the substantially homogeneous surface of the implantable medical device is selected from the group consisting of an external surface, an internal surface, a terminal surface and a combination thereof.

Claim 46. (New) The implantable medical device according to Claim 44, wherein the implantable medical device further comprises an tubular endoluminal stent capable of radially expanding by at least one of shape memory, pseudoelastic, plastic or elastic deformation and having luminal and abluminal surfaces thereof, and at least the luminal surface is a substantially homogeneous surface.

Claim 47. (New) The method according to Claim 38, wherein step (c) further comprises the step of defining a pattern of openings passing through the deposited biocompatible material, the pattern of a plurality of openings defining deformation regions of the biocompatible material capable of undergoing geometric deformation thereby enlarging the pattern of a plurality of openings.

Claim 48. (New) The method according to Claim 38, wherein control of heterogeneities further comprises controlling at least one of grain size, grain phase, grain material composition, material composition and surface topography during vacuum deposition.

Claim 49. (New) The method according to Claim 38, wherein control of heterogeneities further comprises the step of defining polar and non-polar binding sites for binding blood plasma proteins.

C 1 Cancel

Claim 50. (New) The method according to Claim 38, wherein step (b) further comprises the step of controlling at least one of fatigue life, corrosion resistance, tensile strength and yield strength of the vacuum deposited biocompatible material.

Claim 51. (New) The method according to Claim 40, wherein control of heterogeneities further comprises controlling at least one of grain size, grain phase, grain material composition, material composition and surface topography during vacuum deposition.